

# **Technical Information of LG 18650HG2 (3.0Ah)**

**Dec. 05. 2014**

**High Power Cell Development Team**



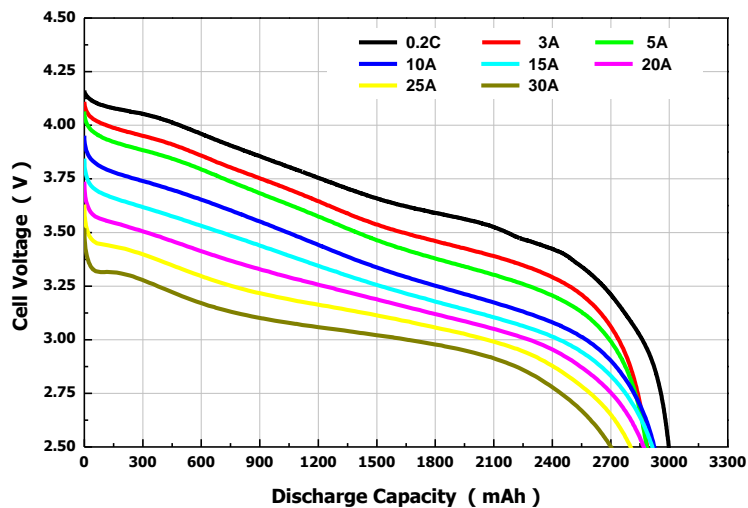
# Summary

Type		Specification	Actual
Chemistry		Li[NiMnCo]O <sub>2</sub> (H-NMC) / Graphite + SiO	
Dimensions (mm)	Diameter	18.3 +0.2 / -0.3 mm	
	Height	65.00 ± 0.2 mm	
Weight (g)		Max. 48	44~45
Initial IR (mΩ AC 1kHz)		Max. 17	14~16
Initial IR (mΩ DC)		Max. 30	24~26
Nominal Voltage (V)		3.6	
Charge Method		Nominal : 1.5A 4.2V, 50mA End-current (CC-CV)	
		Fast : 4A 4.2V, 100mA End-current (CC-CV)	
Charge Time	Nominal (min)	165min	
	Fast (min)	85min	
Charge Current	Nominal Current (A)	1.25A	
	Max. Current (A)	4A	
Discharge	End Voltage (A)	2V	
	Max. Current (A)	20A (Continued discharge current)	
0.2C Capacity	Nominal (Ah)	3.0 Ah	
Energy Density	Nominal (Wh/kg)	240	

# Rate Performance

## • Test Condition

- Charge (CC/CV): 4A charge to 4.2V, 100mA cut-off
- Discharge (CC) : 0.2C-3A-5A-10A-15A-20A-25A-30A discharge, 2.5V cut-off (no temperature. cut off)



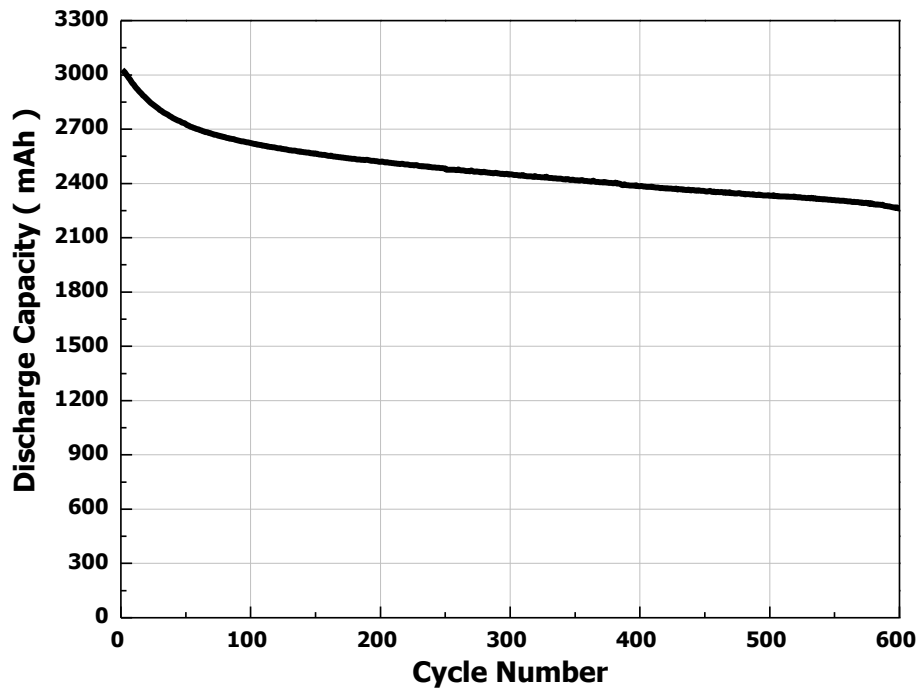
	0.2C	3A	5A	10A	5A	20A	25A	30A
Capacity (mAh)	2998	2886	2884	2925	2913	2873	2802	2702
% $C_N$	100	96	96	98	97	96	93	90
Energy (Wh)	11.0	10.3	10.1	9.8	9.5	9.2	8.7	8.2
% $W_N$	102	95	94	91	88	85	81	76

# Cycle life (10A and 15A)

• Test Condition

- Charge (CC/CV): 4A charge to 4.2V, 0.1A cut-off
- Discharge (CC) : 10A discharge, 2.0V cut-off

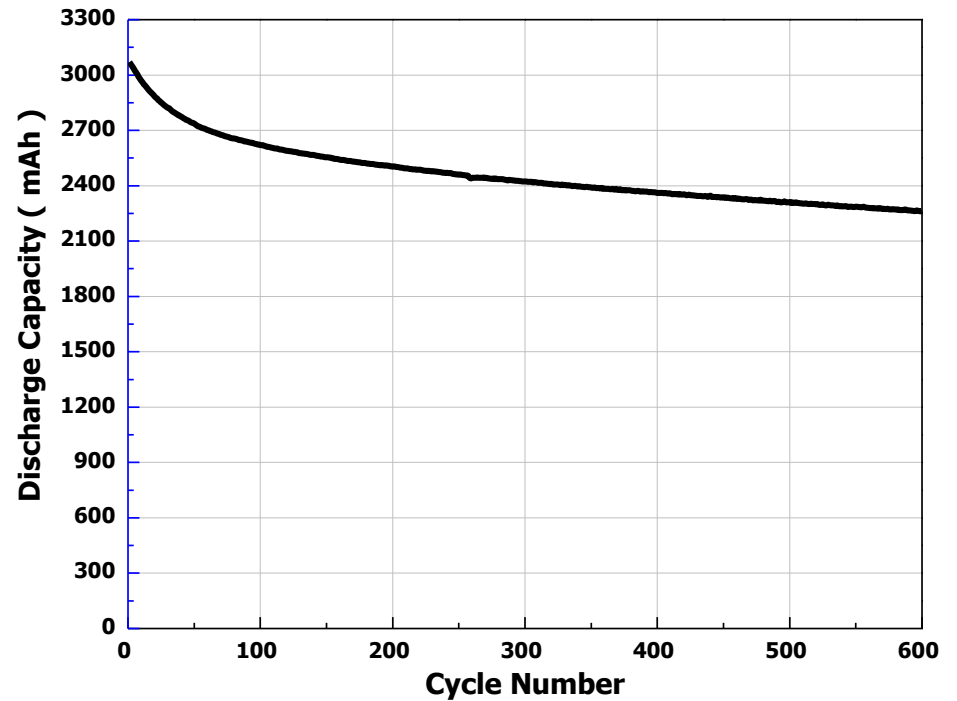
## [10A Cycle]



• Test Condition

- Charge (CC/CV): 4A charge to 4.2V, 0.1A cut-off
- Discharge (CC) : 15A discharge, 2.0V cut-off

## [15A Cycle]

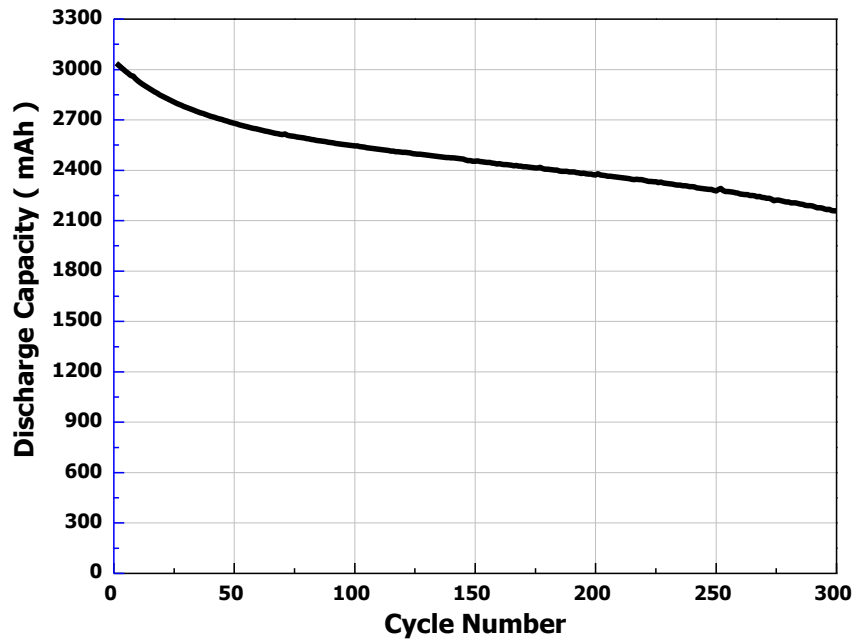


# Cycle life (20A and High Current Pulse)

## • Test Condition

- Charge (CC/CV): 4A charge to 4.2V, 0.1A cut-off
- Discharge (CC) : 20A discharge, 2.0V cut-off

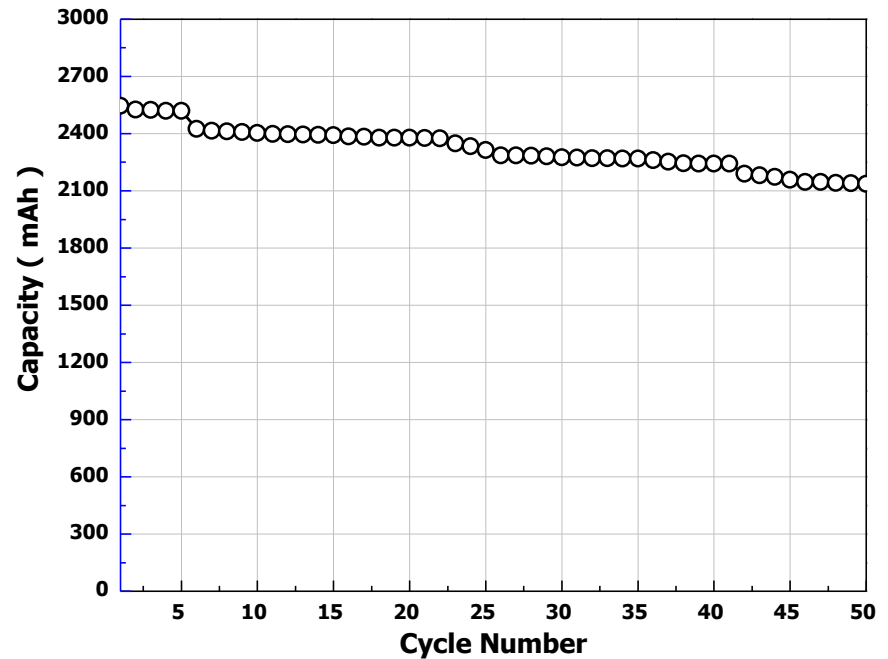
### [20A Cycle]



## • Test Conditions

- Charge : 4A to 4.2V, 100mA Cut-off at 23 °C
- Discharge : 95A (0.5sec) → 80A (0.5sec) → 45A (0.5sec) → 30A (6sec) → rest (12sec), 1.5V cut-off at 23 °C

### [High Current Pulse Cycle]

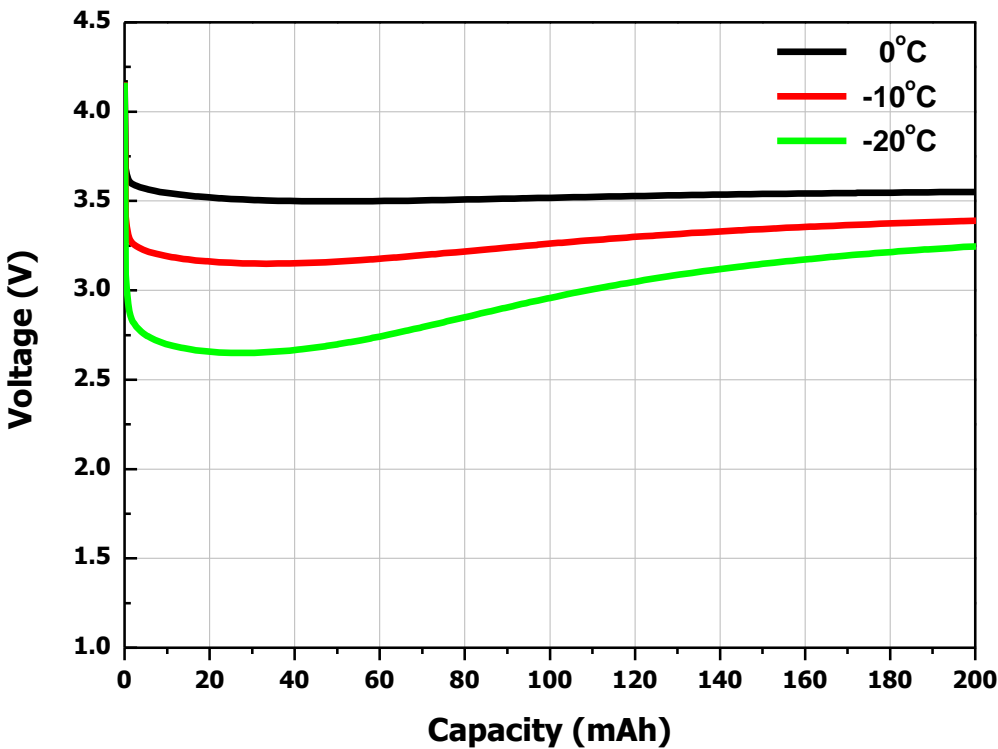


# Low Temperature Discharge Profiles (10A)

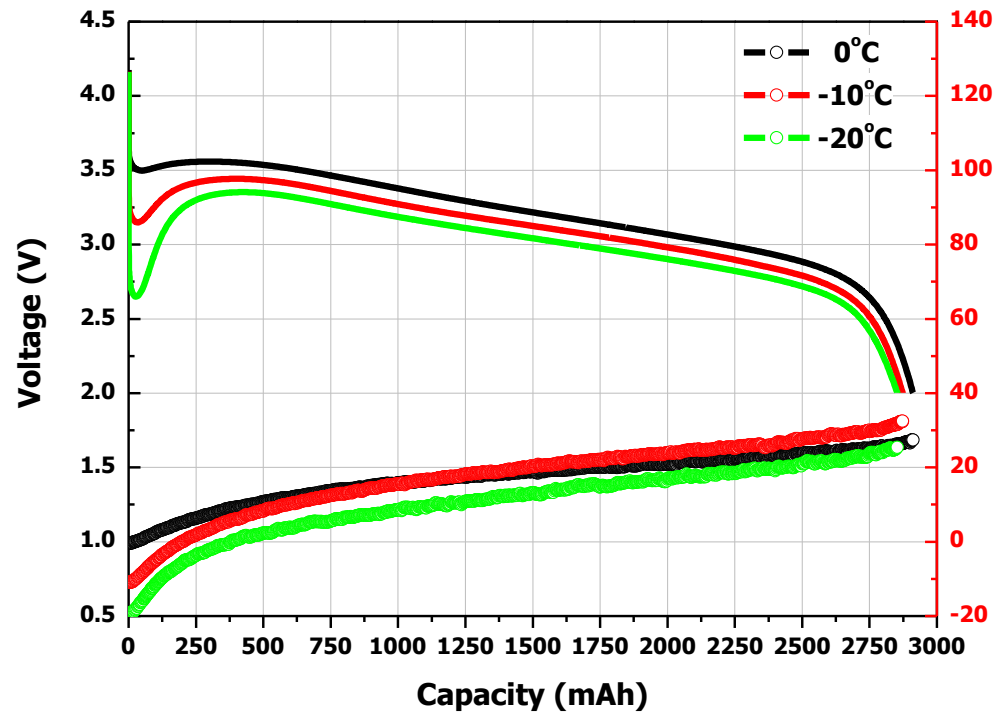
## Test Condition

- Charge (CC/CV): 4A charge to 4.2V, 100mA cut-off at RT
- Discharge (CC) : 10A, at 0, -10, -20°C, 1.5V cut-off

Discharge vs. Temp.



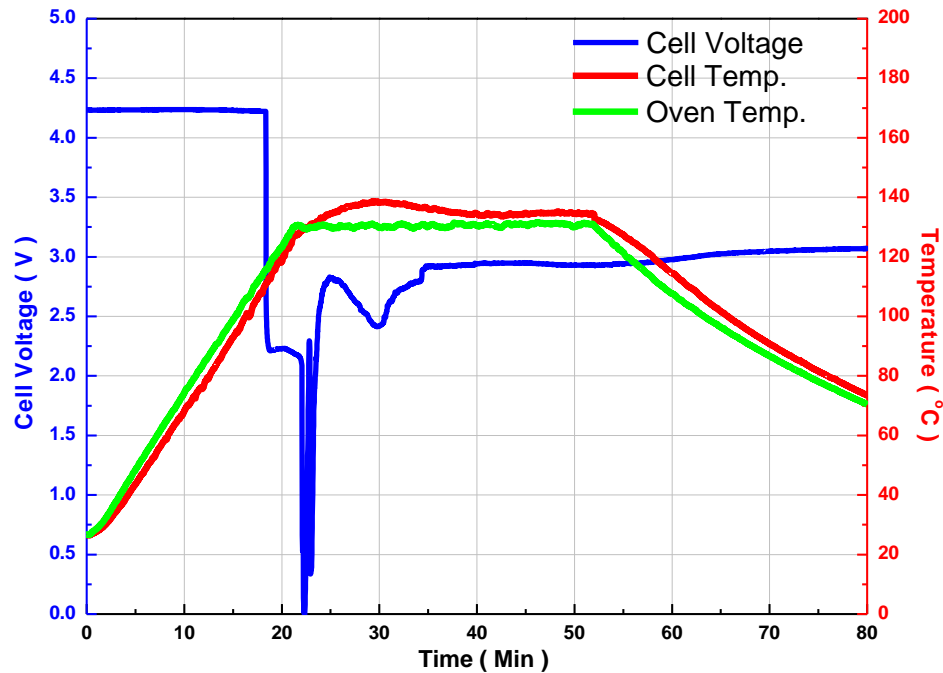
Discharge vs. Temp.



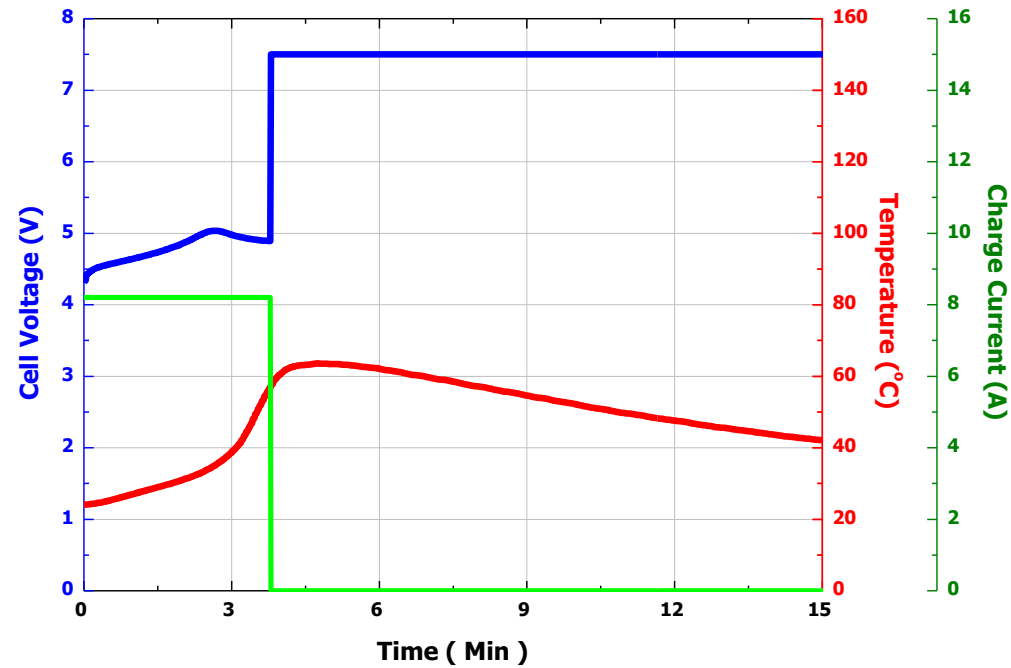
# Safety Test (Hot box and Overcharging)

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## [Hot box, 130°C, 1h]

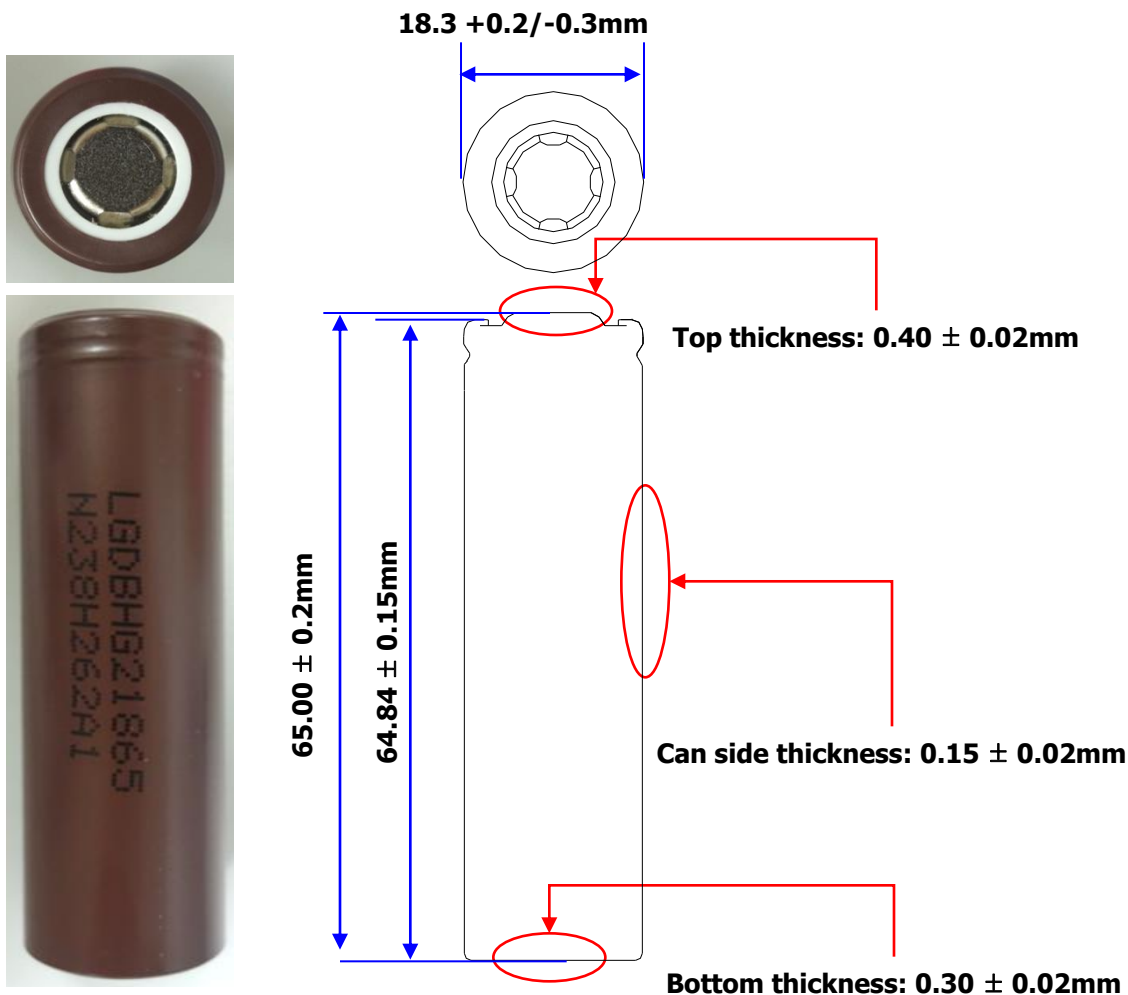


## [Overcharging, 8.2A]



# Dimension of HG2

Can material: Steel (Nickel-plated)  
Tube material: Colored PET ( $t=0.08 \pm 0.02$  mm)





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